

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 02-273721

(43)Date of publication of application : 08.11.1990

(51)Int.Cl. G02F 1/133  
G02F 1/1335

(21)Application number : 01-095108 (71)Applicant : HITACHI LTD

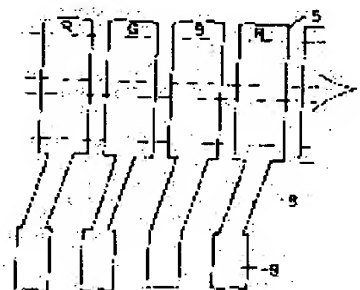
(22)Date of filing : 17.04.1989 (72)Inventor : NAKAMU HIDEAKI

## (54) COLOR LIQUID CRYSTAL DISPLAY ELEMENT

### (57)Abstract:

**PURPOSE:** To set the same threshold voltage for respective colors even if color filter films have differences in film thickness with colors by adjusting resistance by varying the width and/or length of wiring connecting electrodes on a substrate and their connection terminals.

**CONSTITUTION:** For example, when liquid crystal layers increase in thickness in the order of G, R, and B, the width of the lead-around wiring 8 which connects transparent conductive films 5 on the sides of scanning electrodes and external connection terminals 9 is increased in the order of G, R, and B corresponding to the differences in thickness between liquid crystal layers to set the resistance of the lead-around wiring 8 in the increasing order of B, R, and G. Consequently, the resistance of the lead-around wiring to the scanning electrode of the liquid crystal is high, and consequently a voltage applied to the thin liquid crystal layer B is suppressed because of a voltage drop across the wiring. The resistance of the lead-around wiring to the scanning electrode of the thick liquid crystal layer B, however, is low, the voltage drop across it is small, and a voltage applied to the liquid crystal layer is higher than that at the scanning electrode G. Therefore, voltages applied to the liquid crystal layers by respective color scanning electrodes are different and electric field intensity is equal at the places of the respective color scanning electrodes. Consequently, the threshold voltage of the liquid crystal is not affected by the differences in film thickness with the colors of the color filter films.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision  
of rejection]

[Date of requesting appeal against examiner's  
decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2000 Japan Patent Office